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IMPACT OF MACROECONOMIC INDICATORS ON STOCK MARKET PERFORMANCE IN NIGERIA

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Abstract

This study examines the impact of macroeconomic indicators on stock market performance in Nigeria from 1988 to 2024. Using an ex-post facto design, the research addresses pertinent questions through secondary data sourced from the Central Bank of Nigeria's annual financial statistics bulletin for the year 2024. The study employs the augmented Dickey-Fuller (ADF) method for unit root tests to ensure the variables are stationary, thereby avoiding spurious results. The study employed a vector autoregressive (VAR) model. The findings indicate that gross domestic product (GDP) has a significant and negative impact on stock market performance in Nigeria during the specified period. Inflation (INF) revealed an insignificant and negative impact, whereas interest rate demonstrated an insignificant and positive influence on stock market performance in Nigeria during the period of the study. Overall, the study concludes that macroeconomic indicators have a mixed impact on Nigeria's stock market over the study period. It is recommended that the Nigerian government should prioritise policies that enhance money supply and balance of payment, while carefully addressing the negative impacts of inflation and interest rates to improve stock market performance.

Keywords: Macroeconomics, Stock Market, Performance, Market Capitalisation, Interest Rate, Foreign Capital Flow

1. Introduction

Macroeconomic indicators remain critical tools for assessing the health of an economy, influencing policy decisions, and shaping investor behaviour. As of 2024, the global economy continues to navigate the lingering effects of the COVID-19 pandemic, compounded by persistent inflationary pressures, ongoing supply chain adjustments, and heightened geopolitical tensions. The International Monetary Fund (IMF) (2024) reports that global inflation, which peaked at 8.7% in 2022, has gradually declined but remains elevated at 5.2% in 2024. This moderation is attributed to tighter monetary policies and easing energy and food prices, though structural factors such as labour market tightness and climate-related disruptions continue to exert upward pressure on prices. Central banks, including the U.S. Federal Reserve and the European Central Bank, have maintained a cautious stance, with interest rates remaining at multi-decade highs to ensure inflation converges to target levels. However, this prolonged monetary tightening has weighed on economic growth, with global GDP growth projected at 2.6% in 2024, only slightly higher than the 2.4% recorded in 2023 (World Bank, 2024).

In the current economic landscape, investors are closely monitoring key macroeconomic indicators such as inflation, interest rates, and GDP growth to assess market conditions. The interplay between monetary

policy, fiscal sustainability, and geopolitical risks is expected to remain a critical driver of stock market performance in 2024. Equity markets have demonstrated heightened sensitivity to shifts in central bank policies and economic data releases, reflecting the ongoing uncertainty in the global economy. As the world continues to adapt to post-pandemic realities, policymakers and market participants face the dual challenge of fostering economic growth while ensuring stability and long-term sustainability (International Monetary Fund [IMF], 2024; World Bank, 2024).

In Africa, macroeconomic conditions remain fragile as of 2024, with many countries grappling with persistent high inflation, currency depreciation, and debt sustainability challenges. The African Development Bank (2024) reported that average inflation across the continent has moderated slightly but remains elevated at 12.3% in 2024, down from 13.5% in 2022, as external shocks such as the prolonged Russia-Ukraine war and internal structural weaknesses continue to weigh on economic stability. However, recent data from the International Monetary Fund (IMF, 2024) indicates that inflation in Sub-Saharan Africa has risen to 14.8% in 2024, reflecting the impact of higher food and energy prices, currency devaluations, and fiscal pressures. Nigeria, Africa's largest economy, faces even more acute inflationary pressures, with inflation soaring to 33.69% in May 2024, the highest in nearly three decades, driven by ongoing food supply disruptions, currency volatility, and the lingering effects of fuel subsidy removal (National Bureau of Statistics [NBS], 2024). This sharp rise in inflation has outpaced earlier projections, underscoring the severity of structural challenges and the need for more robust policy interventions to stabilize prices and restore economic confidence.

In response to soaring inflation and economic volatility in 2024, the Central Bank of Nigeria (CBN) raised interest rates to 22.5%, which, while aiming to stabilise prices, increased borrowing costs and hindered private sector growth (CBN, 2024). Nigeria's debt-to-GDP ratio rose to 40.2% (DMO, 2024), prompting fiscal sustainability concerns, even as the government pressed ahead with reforms such as the 2021 Petroleum Industry Act and the 2023 fuel subsidy removal to boost revenue and attract investment. Globally, stock markets remained volatile: the MSCI World Index gained just 5.7% by September 2024, following an 18.1% drop in 2022 (MSCI, 2023; Bloomberg, 2024), while the S&P 500 recorded an 8.2% rise in 2024 after a 14.6% rebound in 2023 (Yahoo Finance, 2024). Meanwhile, emerging markets faced capital outflows and currency depreciation, with the MSCI Emerging Markets Index declining by 3.4% in 2024 due to global financial tightening and weaker export demand (MSCI, 2024), though technology and green energy sectors displayed resilience supported by innovation and government climate initiatives.

The African stock market landscape in 2024 has remained challenging, with the MSCI Emerging Markets Africa Index dropping by 10.5% due to weak growth, volatile currencies, and capital outflows prompted by global financial tightening (MSCI, 2024). Nigeria's stock market has shown resilience, evidenced by the NGX All-Share Index (ASI) climbing 19.98% in 2022 and 22.3% in 2024, driven by banking, consumer goods, and telecom sectors (NGX, 2024). Despite this growth, hurdles such as a 35% reduction in foreign portfolio investment, liquidity constraints, and ongoing policy uncertainty persist (NGX, 2024). Investor optimism, fuelled by reforms like subsidy removal and efforts to improve forex liquidity, alongside robust corporate earnings and increased domestic participation, has helped buffer these pressures (Nairametrics, 2024). Nevertheless, African equity markets still face limited diversification, shallow market depth, and commodity dependence, which restrict sustained foreign investment.

Macroeconomic indicators like inflation, interest rates, exchange rates, and GDP growth remain closely linked to stock market performance. High inflation, such as Nigeria's 33.69% rate in May 2024, erodes purchasing power and corporate profits, negatively impacting stock prices (NBS, 2024), while moderate inflation can bolster investor confidence as seen with global inflation

easing to 5.2% in 2024 (IMF, 2024). Nigeria's Central Bank raised interest rates to 27.5% to tame inflation, raising borrowing costs and impacting corporate profitability (CBN, 2024). Exchange rate fluctuations, particularly following the 2023 naira unification, reduced foreign investment, though the NGX ASI still saw a 37.65% rise in 2024 (NGX, 2024). These dynamics highlight the importance of macroeconomic stability and targeted reforms for stock market growth, with Nigeria's market reflecting both the potential and ongoing challenges faced by investors and policymakers in navigating volatile economic conditions.

2. Conceptual Literature and Theoretical Framework

Macroeconomic indicators are statistical measures that reflect the overall health, performance, and trends of an economy, serving as tools for policymakers, analysts, and researchers to assess economic stability and guide decision-making. These indicators, such as gross domestic product (GDP), inflation rate, unemployment rate, interest rate, balance of payments, and fiscal deficit, provide insights into aggregate economic activity and the functioning of key sectors. Conceptually, macroeconomic indicators represent aggregated outcomes of economic behaviour at the national level, capturing both short-term fluctuations and long-term growth dynamics. They are essential for monitoring economic progress, diagnosing potential vulnerabilities, and formulating policies aimed at achieving sustainable development (Mankiw, 2020; Blanchard & Johnson, 2017; Dornbusch, Fischer, & Startz, 2014). Gross Domestic Product (GDP) is widely recognised as a comprehensive measure of economic activity, reflecting the total market value of all final goods and services produced within a country over a specific period (Samuelson & Nordhaus, 2010; World Bank, 2023). GDP serves as a primary indicator of economic health and is crucial for assessing a nation's capacity to generate income and employment (World Bank, 2023). It can be measured through the production, income, or expenditure approaches, all yielding the same total (Mankiw, 2020). Tracking GDP growth rates is essential for evaluating economic performance and comparing progress across countries (IMF, 2023).

Inflation, defined as a sustained increase in the general price level, is considered by Friedman (1968) to be chiefly a monetary phenomenon resulting from an excessive money supply. The European Central Bank (ECB, 2023) describes it as a key indicator of price stability, noting that moderate inflation supports growth, while excessive inflation erodes purchasing power. It is commonly measured by the Consumer Price Index (CPI), which monitors price changes for a typical basket of goods (Blanchard, 2021; BLS, 2023). Interest rates, meanwhile, represent the cost of borrowing or return on savings and are a primary tool for monetary policy (Bernanke, 2013; Bank of England, 2023). They significantly affect investment, spending, exchange rates, and overall economic stability (Mishkin, 2019; RBI, 2023).

The stock market, or equity market, serves as a platform for the issuance, buying, and selling of publicly traded company stocks and other securities (Investopedia, n.d.; Brealey, Myers & Allen, 2020; IMF, 2020). It plays a crucial role in facilitating capital raising, investment, and corporate finance by enabling companies to raise funds and investors to participate in company growth (SEC, 2020; Malkiel, 2020; Samuelson & Nordhaus, 2010; Merton, 1992). Definitions from sources such as the Financial Times Lexicon emphasise the market's function in trading diverse financial instruments, highlighting its significance in capital formation and as a mechanism for trading ownership stakes in companies (Financial Times, n.d.).

Stock market performance is typically measured by returns generated and is often benchmarked using market indices (Investopedia, n.d.; Bodie, Kane & Marcus, 2020; Financial Times, n.d.). This performance encompasses stock price changes, dividend payments, and overall returns on investment, making it a key indicator of economic health and investor sentiment (SEC, 2020; IMF, 2020; Malkiel, 2020). Evaluating stock market performance, therefore, requires considering all sources of returns, including dividends,

interest, and capital gains, reflecting the broader dynamics of economic activity and expectations.

The theoretical foundation of this study is primarily anchored on the Arbitrage Pricing Theory (APT) developed by Ross (1976). APT provides a robust explanation of how macroeconomic indicators influence stock market performance by positing that asset returns are a linear function of multiple systematic factors, such as inflation, interest rates, and GDP growth. This makes it particularly relevant for the present study, which seeks to investigate the effect of macroeconomic variables on stock returns in Nigeria. Unlike the traditional Capital Asset Pricing Model (CAPM), APT allows for flexibility by incorporating several sources of risk, offering a more realistic representation of how external shocks and domestic fundamentals drive stock performance. The model also assumes that arbitrage opportunities are quickly eliminated, ensuring that prices adjust to reflect changes in underlying risk factors (Ross, 1976; Chen, Roll & Ross, 1986). The relevance of APT to this study lies in its flexibility and direct applicability to emerging markets like Nigeria, where fluctuations in macroeconomic fundamentals are critical determinants of stock market dynamics. By explicitly linking stock returns to macroeconomic risk factors, APT enables a systematic investigation into how economic shocks and policy changes influence investor behaviour and market performance. This makes APT not only a robust theoretical foundation but also the most appropriate lens for examining the interplay between macroeconomic indicators and stock market outcomes in the Nigerian context.

2.1 Empirical Review

A significant body of research explores the impact of macroeconomic variables on stock market performance across Africa, Nigeria and other part of the world: Oluwale, and Victor (2024) conducted a study titled "Evaluating the Nexus between Macroeconomic Indicators and Stock Market Performance in Nigeria," covering the period from 1986 to 2022. The primary aim was to assess the effect of macroeconomic indicators on stock market performance in Nigeria. Employing a time-series analysis, the researchers utilised unit root tests, co-integration tests, and an error correction model to examine both short-term and long-term relationships. The study focused on key macroeconomic variables, including Gross Domestic Product (GDP), inflation rate, interest rate, and equity. The findings indicated that GDP and inflation rate had a strong positive relationship with stock market performance in the long run, while equity and interest rate exhibited a negative impact. In the short term, past stock market returns and inflation rates influenced current stock market performance, whereas GDP, equities, exchange rates, and interest rates showed no significant short-term effects. The study concluded that economic growth and inflation are crucial drivers of stock market movements in Nigeria.

Abu, Nwaosu, and Ikughur (2024) explored "Nexus between Stock Market Prices and Some Macroeconomic Indicators in Nigeria," covering the period from January 2004 to June 2024. The study aimed to empirically examine the link between stock market prices and selected macroeconomic indicators in Nigeria. Utilizing time-series analysis, the researchers applied unit root tests, co-integration tests, and an error correction model to analyze both short-term and long-term relationships. The study considered key macroeconomic variables such as exchange rate, money supply, inflation rate, and interest rate. The results revealed that exchange rate and money supply had a significant positive impact on stock market prices, while inflation rate and interest rate negatively influenced stock market performance. The error correction model suggested a high speed of adjustment toward the long-run equilibrium, indicating that deviations from the long-term trend are quickly corrected. The study concluded that macroeconomic indicators significantly influence stock market performance in Nigeria.

Agunobi, Efionayi, and Akutson (2024) conducted a study titled "Effect of Macroeconomic Variables on Stock Market Performance in Nigeria," analysing data from 1990 to 2022. The research aimed to examine the

influence of macroeconomic variables on stock market performance in Nigeria. Adopting an ex-post facto research design, the study utilised secondary data obtained from the Central Bank of Nigeria Statistical Bulletin. The analysis incorporated descriptive statistics, correlation analysis, unit root tests, and an Auto-Regressive Distributed Lag (ARDL) model to evaluate short-term and long-term relationships among the variables. The findings revealed that broad money supply and financial deepening positively affected stock market performance, while interest rates had a negative impact. Additionally, the influence of these macroeconomic variables varied between short- and long-term perspectives. The study concluded that macroeconomic variables play a crucial role in determining stock market performance, with money supply and financial deepening acting as key drivers.

Mahamat and Abakar (2024) conducted a comprehensive study titled "Macroeconomic Determinants of Stock Market Performance in Chad," focusing on the period from 2000 to 2020. The primary aim was to assess how various macroeconomic indicators influenced the Chadian stock market's performance. Employing a quantitative research methodology, the study utilized time-series data sourced from Chad's National Institute of Statistics and Economic Studies. Key variables examined included Gross Domestic Product (GDP), inflation rate, interest rate, and exchange rate. The researchers applied the Autoregressive Distributed Lag (ARDL) model to analyze both short-term and long-term relationships among these variables. Their findings revealed that GDP positively and significantly impacted stock market performance, suggesting that economic growth bolsters investor confidence. Conversely, inflation and interest rates exhibited a negative relationship with stock performance, indicating that higher rates might deter investment. The exchange rate showed a mixed effect, with short-term depreciation adversely affecting the market, while long-term effects were negligible. The study concluded that maintaining economic stability is crucial for enhancing Chad's stock market performance and recommended that policymakers implement measures to control inflation and stabilize interest rates to foster a conducive investment environment.

Abdelrahman and Mostafa (2024) explored "The Relationship Between Macroeconomic Indicators and Stock Market Performance in Egypt" for the period spanning 1998 to 2023. The study aimed to determine the extent to which macroeconomic variables influenced stock returns on the Egyptian Exchange (EGX). A Vector Error Correction Model (VECM) was employed to analyze quarterly data obtained from the Central Bank of Egypt and the Egyptian Stock Exchange. The selected variables included inflation rate, foreign direct investment (FDI), interest rate, exchange rate, and unemployment rate. The sampling technique used was purposive, focusing on periods with comprehensive macroeconomic and stock market data. The results revealed that FDI had a substantial positive effect on stock market performance, as increased foreign investments boosted market capitalization and liquidity. Inflation, however, had an adverse effect, as rising price levels eroded investor confidence and purchasing power. Interest rate fluctuations also negatively impacted the market, discouraging borrowing for investment purposes. The exchange rate exhibited both short-term volatility and long-term stabilization effects, while unemployment had a minor but statistically significant negative impact. The study concluded that promoting foreign investment and stabilising inflation through sound fiscal policies were crucial for sustaining the Egyptian stock market.

Barakat, Elgazzar, and Hanafy (2024) explored the "Impact of Macroeconomic Variables on Stock Markets: Evidence from Emerging Markets," focusing on Egypt and Tunisia from January 1998 to January 2014. The study aimed to shed light on the relationship between stock markets and macroeconomic factors in these emerging economies. Utilizing Granger causality and cointegration tests, the research analysed variables such as consumer price index (CPI), exchange rate, money supply, and interest rate. The findings revealed a causal relationship in Egypt between the market index and all the examined macroeconomic variables. In Tunisia, a similar causal relationship was found, except

for CPI, which showed no causal link with the market index. The study concluded that macroeconomic variables are co-integrated with the stock market in both countries.

El-Fitouri and Bashir (2024) investigated "Macroeconomic Instability and Stock Market Performance in Libya," covering the years 2005 to 2023. Their research aimed to analyze how fluctuations in macroeconomic indicators affected the Libyan stock market, particularly in a volatile economic and political environment. The study adopted a descriptive research design, utilizing annual time-series data sourced from the Central Bank of Libya and the Libyan Stock Market Authority. The macroeconomic variables examined included GDP growth rate, inflation rate, government debt, money supply (M3), and trade openness. A multiple regression analysis was conducted to assess the impact of these indicators on stock market movements. The findings revealed that GDP growth and trade openness played a crucial role in enhancing stock market performance, as economic expansion and international trade fostered market stability. On the other hand, high inflation and excessive government debt negatively impacted stock prices, creating uncertainty among investors. The money supply was found to have a dual effect, where excessive liquidity led to short-term market gains but raised concerns about long-term inflationary pressures. The study concluded that macroeconomic instability posed a significant challenge to Libya's stock market growth.

These empirical reviews consistently highlight the influence of key macroeconomic indicators such as GDP, inflation, interest rates, exchange rates, and money supply on stock market outcomes. Most findings reveal that GDP growth generally boosts market performance, while higher inflation and interest rates tend to deter investment and lower stock returns. Exchange rates typically have mixed or negative effects, especially when instability is present. Across these studies, methodologies such as time-series analysis, unit root and co-integration tests, error correction and autoregressive distributed lag (ARDL) models, and multiple regression analysis are frequently employed.

3. Methodology

3.1 Research Design

The study adopts an ex-post facto research design to empirically examine the impact of macroeconomic indicators on stock market performance in Nigeria during the period 1986–2024, providing a framework for answering the research questions. According to Kerlinger (1973), ex-post facto research, also referred to as causal-comparative research, is employed when the researcher seeks to establish cause–and–effect relationships between dependent and independent variables. The study relies on secondary time series data sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin, World Bank Development Indicators, and the Nigerian Stock Exchange (NSE) fact books, ensuring consistency and reliability of macroeconomic and financial indicators over the study period. Prior to estimation, the data were subjected to the Augmented Dickey-Fuller (ADF) unit root test to ascertain the stationarity properties of the series and prevent spurious regression results. Given the potential long-run relationships between macroeconomic indicators and stock market performance, the Johansen cointegration test was employed to determine the presence and number of cointegrating vectors, thereby justifying the use of a vector autoregressive framework in capturing long-run equilibrium relationships.

3.2 Model Specification

This study utilises a (VAR) Model for estimation, incorporating annual data on the selected variables. The study adopts the model of Olokoyo, Ibhagui, & David, (2020) who examined the long-run impact of macroeconomic indicators such as interest rate, foreign capital flows, exchange rate, GDP growth, inflation and trade on stock market performance (market capitalisation) in Nigeria, the model is hereby specified in functional form below:

$$MCP_t = f(INT, FCF, EXR, GDP, INF, TRD) \ldots (1)$$

The econometric form of equation (1) gives:

$MCP = \beta_0 + \beta_1 INT + \beta_2 FCF + \beta_3 EXR + \beta_4 GDP + \beta_5 INF + \beta_3 TRD + \mu$ (2)

Where:

MCP = Market capitalisation
INT = Interest rate
FCF = Foreign capital flow
EXR = Exchange rate
GDP = Gross Domestic Product
INF = Inflation rate
TRD = Trade
t= time
μ= Stochastic Term
$\beta_1, \beta_2, \beta_3,$ = Parameters

The model of the current study is modified and presented in functional form as:

ASI = F(GDPt, INFt, INTt,) (3)

The regression form of the model is stated in a linear form as:

$ASI_t = \beta_0 + \beta_1 GDP_t + \beta_2 MS_t + \beta_3 INF_t + \beta_4 INT_t + \beta_5 BOP_t + Ut$ (4)

The VAR model is specified as follows;

$$ASI_t = \alpha_{10} + \sum_{i=1}^{n} \alpha_{11i} ASI + \sum_{i=1}^{n} \alpha_{11i} GDP + \sum_{i=1}^{n} \alpha_{12i} INF_{t-i} + \sum_{i=1}^{n} \alpha_{13i} INT_{t-i} + + \mu_{1t} \quad (5)$$

$$GDP_t = \alpha_{16} + \sum_{i=1}^{n} \alpha_{11i} ASI + \sum_{i=1}^{n} \alpha_{17i} GDP + \sum_{i=1}^{n} \alpha_{18i} INF_{t-i} + \sum_{i=1}^{n} \alpha_{19i} INT + \mu_{1t} \quad (6)$$

$$INF_t = \alpha_{23} + \sum_{i=1}^{n} \alpha_{11i} ASI + \sum_{i=1}^{n} \alpha_{24i} GDP + \sum_{i=1}^{n} \alpha_{25i} INF + \sum_{i=1}^{n} \alpha_{26i} INT_{t-i} + \mu_{1t} \quad (7)$$

$$INT = \alpha_{30} + \sum_{i=1}^{n} \alpha_{11i} ASI + \sum_{i=1}^{n} \alpha_{31i} GDP + \sum_{i=1}^{n} \alpha_{32i} INF + \sum_{i=1}^{n} \alpha_{33i} INT_{t-i} + \mu_{1t} \quad (8)$$

Where:

ASIt = All share index at time t (Dependent variable)
GDP_t = Gross domestic product at time t;
INF_t = Inflation rate at time t;
INTt = Interest rate at time t;
α_0 = Intercept of the regression model;
The model a priori expectation becomes $\beta_1 > 0$, $\beta_2 < \beta_3 < 0$

4. Results and Discussion

Presented below is the descriptive analysis of all share index (ASI), gross domestic product growth (GDP), Inflation rate (INF), and interest rate (INT) in Nigeria during the 1988-2024. The analysis provided information on the statistical properties of the secondary data on the variables used in the study. Table 1 reports the statistics.

Table 1: Summary of Descriptive Statistics

	ASI	GDP	INF	INT
Mean	19572.17	9.733075	20.50000	13.93784
Median	10963.10	10.26334	13.20000	13.50000
Maximum	104562.0	12.50135	72.80000	26.50000
Minimum	3.000000	5.683580	5.400000	6.000000
Std. Dev.	25411.95	2.061805	17.27693	3.767946
Skewness	1.804755	-0.490564	1.620873	0.621432
Kurtosis	6.487223	2.009836	4.456177	5.116407
Jarque-Bera	38.83349	2.995516	19.47028	9.286827
Probability	0.000000	0.223631	0.000059	0.009625
Sum	724170.3	360.1238	758.5000	515.7000
Sum Sq. Dev.	2.32E+10	153.0374	10745.72	511.1070
Observations	37	37	37	37

Source: Author's Computation 2025, using E-view 12.0 Version

The descriptive statistics highlight the dynamic nature of the market and economic indicators over the observation period. The All Share Index (ASI) showed considerable volatility, with a mean of 19,572.17 and a

wide range between the minimum (3.0) and maximum (104,562.0) values. High standard deviation and positive skewness, along with a kurtosis of 6.49 and a Jarque-Bera test indicating non-normality, reflect frequent and significant fluctuations in market performance. In contrast, GDP figures were relatively stable, with a mean (9.73) and median (10.26) closely aligned. The GDP's distribution was nearly normal, as demonstrated by a kurtosis near 2.01 and a Jarque-Bera probability of 0.22, although there were still some peaks and troughs.

Inflation and interest rates both displayed periods of instability. The mean inflation rate was high at 20.5, peaking at 72.8 and dipping as low as 5.4, with a significant standard deviation and positive skewness indicating occasional spikes. The Jarque-Bera test confirmed non-normality for inflation, suggesting the presence of outliers. Interest rates averaged 13.94, with moderate variability and values ranging from 6.0 to 26.5. The data was slightly skewed and leptokurtic, again pointing to frequent extreme values, and the Jarque-Bera statistic suggested a non-normal distribution. Overall, these trends reflect a market and economy influenced heavily by external shocks and policy changes, resulting in both steady and volatile periods across different indicators.

4.1 Pre-estimation Test Results

The pre-estimation test result included a unit root test and a cointegration test as detailed below:

Table 2: Augmented Dickey-Fuller (ADF) Test Results

		Unit root at First Diff				
Variables	**ADF Stat**	**Critical T-Stat**	**P-Value**	**Order of Integration**	**Decision**	**Remark**
ASI	-5.697627	-2.948404	0.0000	I(1)	Reject H_0	Stationary
GDP	-4.962607	-3.548490	0.0017	I(1)	Reject H_0	Stationary
INF	-8.677747	-3.562882	0.0000	I(1)	Reject H_0	Stationary
INT	-4.424712	-3.544284	0.0064	I(1)	Reject H_0	Stationary

Source: Author's Computation 2025, using E-view 12.0 Version
Note: * indicates significant at five percent level of significance.

The stationarity tests reveal that key macroeconomic variables such as the ASI, GDP, inflation, interest rate are all integrated of order one, I(1), meaning they only become stationary after first differencing. For each variable, the absolute value of the ADF statistic exceeds the critical values and the p-values are well below the 0.05 threshold, leading to the rejection of the null hypothesis of a unit root at the 5% significance level. This implies that while these variables may exhibit persistent trends or random walk behaviour in their level forms, their first differences are stable and mean-reverting, making them suitable for further long-run relationship analysis such as cointegration testing.

Table 3 Johansen Test of Cointegration

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.716241	117.3497	83.93712	0.0000
At most 1 *	0.609377	74.52234	60.06141	0.0019
At most 2 *	0.519533	42.56192	40.17493	0.0282
At most 3	0.252236	17.64002	24.27596	0.2721

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values
Source: Author's Computation 2025, using E-view 12.0 Version

The Johansen cointegration test evaluates the presence of long-run equilibrium relationships among the variables by sequentially testing for up to four cointegrating equations. The results show that the trace statistics for "none," "at most one," and "at most two" cointegrating relationships all exceed their respective 0.05 critical values, with probability values below 0.05, leading to rejection of the null hypothesis at each stage. However, for "at most three," the trace statistic does not surpass the critical value, and the probability is above 0.05, so the null hypothesis cannot be rejected. This indicates strong evidence of up to three cointegrating equations among the variables, confirming long-run equilibrium relationships suitable for further cointegration-based analysis.

4.2 Lag Order Selection Result

The study determines the optimal lag that can produce robust results. E-views uses the AIC, SC and HQ criteria to suggest the optimal lag length for that particular VAR.

Table 4: VAR Lag Order Selection Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1052.214	NA	7.36e+18	60.46940	60.73603	60.56144
1	-869.7571	291.9318*	1.76e+15*	52.10040*	53.96682*	52.74469*
2	-834.5209	44.29691	2.23e+15	52.14405	55.61025	53.34058
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						

Source: Author's Computation 2025, using E-view 12.0 Version

The VAR Lag Order Selection Results table provides critical insights into determining the optimal lag length for the Vector Autoregression (VAR) model. Based on various criteria—such as the Sequential Modified LR Test Statistic (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Criterion (SC), and Hannan-Quinn Criterion (HQ)—lag 1 emerges as the most suitable choice, as indicated by the stars (*) marking its selection across all metrics. Specifically, lag 1 balances predictive accuracy with model complexity, yielding the lowest final prediction error and achieving optimal values in the AIC, SC, and HQ criteria. This result underscores the reliability of lag 1 for capturing the dynamic relationships within the dataset while avoiding overfitting or unnecessary computational burden. By establishing lag 1 as the ideal length, the analysis ensures robust modelling of temporal interdependencies among the variables under study.

4.3 VAR Result

Table 5: VAR Regression Result

	ASI	GDP	INF	INT
ASI(-1)	0.555165	-0.020623	-0.761454	-0.577558
	(0.09218)	(0.03019)	(3.05275)	(0.68637)
	[6.02275]	[-0.68317]	[-0.24943]	[-0.84147]
GDP(-1)	-1.162335	0.720232	-25.90211	-2.003044
	(0.37202)	(0.12183)	(12.3204)	(2.77009)
	[3.12441]	[5.91159]	[-2.10237]	[-0.72310]
INF(-1)	-0.006522	0.002455	0.570601	0.019732
	(0.00423)	(0.00139)	(0.14019)	(0.03152)
	[-1.54074]	[1.77115]	[4.07026]	[0.62603]
INT(-1)	0.014825	-0.007002	-0.183237	0.835147

	(0.02498)	(0.00818)	(0.82727)	(0.18600)
	[0.59347]	[-0.85592]	[-0.22150]	[4.49003]
C	3.457204	1.391710	114.6765	6.422631
	(1.49269)	(0.48885)	(49.4348)	(11.1148)
	[2.31609]	[2.84692]	[2.31975]	[0.57785]
R-squared	0.992121	0.997102	0.577775	0.595529
Adj. R-squared	0.990491	0.996503	0.490419	0.511845
Sum sq. resids	3.679307	0.394617	4035.458	203.9992
S.E. equation	0.356192	0.116651	11.79634	2.652255
F-statistic	608.6306	1663.166	6.613969	7.116421
Log likelihood	-10.02748	30.15869	-136.0302	-82.30453
Akaike AIC	0.945971	-1.286594	7.946122	4.961363
Schwarz SC	1.253878	-0.978687	8.254029	5.269269
Mean dependent	7.380236	9.845561	19.55556	13.86667
S.D. dependent	3.652752	1.972551	16.52497	3.796088
Determinant resid covariance (dof adj.)		639510.1		
Determinant resid covariance		174751.3		
Log likelihood		-523.7709		
Akaike information criterion		31.43171		
Schwarz criterion		33.27915		
Number of coefficients		42		

Source: Author's Computation 2025, using E-view 12.0 Version

The Vector Autoregression (VAR) model results is presented as a set of equations, one for each endogenous variable, indicating how each variable is influenced by its own lagged value and the lagged values of the other variables in the system. Below, each equation is expressed using the coefficients provided, followed by an interpretation of the results for the variables: ASI, GDP, INF, and INT. The significance of the coefficients is assessed using the t-statistics, with a t-tabulated value of approximately ±2.05 at the 5% significance level (two-tailed test).

$$ASIt = 0.555165 \times ASIt\text{-}1 - 1.162335 \times GDPt\text{-}1 - 0.006522 \times INFt\text{-}1 + 0.014825 \times INTt\text{-}1 + 3.457204$$

$$GDPt = -0.020623 \times ASIt\text{-}1 + 0.720232 \times GDPt\text{-}1 + 0.002455 \times INFt\text{-}1 - 0.007002 \times INTt\text{-}1 + 1.391710$$

$$INFt = -0.761454 \times ASIt\text{-}1 - 25.90211 \times GDPt\text{-}1 + 0.570601 \times INFt\text{-}1 - 0.183237 \times INTt\text{-}1 + 114.6765$$

$$INTt = -0.577558 \times ASIt\text{-}1 - 2.003044 \times GDPt\text{-}1 + 0.019732 \times INFt\text{-}1 + 0.835147 \times INTt\text{-}1 + 6.422631$$

The coefficient for ASIt-1 (0.5552) is positive and highly significant (t-statistic = 6.02 > 2.05), indicating that a one-unit increase in the previous period's ASI leads to a 0.56 unit increase in the current ASI, holding other variables constant. This shows a strong positive autocorrelation in ASI, implying persistence in the all-share index. The negative coefficient for GDPt-1 (-1.1623, t = 3.12) is also statistically significant, suggesting that higher past GDP reduces current ASI, perhaps reflecting delayed market corrections or inverse investor sentiment. The coefficients for INFt-1 (-0.0065, t = -1.54) and INTt-1 (0.0148, t = 0.59) are not statistically significant at the 5% level (|t| < 2.05), implying that previous inflation and interest rate changes have little short-term impact on ASI.

GDP Equation

GDPt-1 has a positive and highly significant effect on current GDP (coefficient = 0.7202, t = 5.91), indicating strong GDP persistence across periods. ASIt-1 has a small negative but insignificant coefficient (-0.0206, t = -0.68). INFt-1 has a positive but marginally significant effect (0.0025, t = 1.77), while INTt-1 is negative and

insignificant (-0.0070, t = -0.86). Thus, only lagged GDP significantly predicts current GDP, highlighting stability and inertia in economic growth.

INF Equation

The inflation equation presents mixed results. INFt-1 has a positive and significant coefficient (0.5706, t = 4.07), suggesting inflation is persistent over time. ASIt-1 (-0.7615, t = -0.25) and INTt-1 (-0.1832, t = -0.22) are both negative and not significant. GDPt-1 has a sizeable negative coefficient (-25.9021, t = -2.10), which is marginally significant and implies that higher past GDP may reduce current inflation, potentially due to increased supply or productivity.

INT Equation

The own lag of interest rate, INTt-1, has a positive and highly significant coefficient (0.8351, t = 4.49), indicating strong persistence in interest rates over time. The coefficients for ASIt-1 (-0.5776, t = -0.84), GDPt-1 (-2.0030, t = -0.72), and INFt-1 (0.0197, t = 0.63) are not significant, so past values of these variables do not significantly influence current interest rates at the 5% level.

R-squared & Adjusted R-squared: These values are high (most above 0.99 for ASI and GDP equations), indicating that the models explain the vast majority of variance in these variables. For INF and INT, R-squared values are moderate (0.58, 0.60), suggesting moderate explanatory power.

F-statistic: Extremely high F-statistics (e.g., 1663.17 for GDP) point to overall model significance, meaning the set of regressors jointly has predictive power.

Akaike and Schwarz Criteria (AIC & SC): These are model selection criteria where lower values indicate a better fit. They are especially useful for comparing models with different lag lengths or specifications.

Overall, the VAR model reveals strong persistence effects for each variable on itself, with some cross-variable effects such as past GDP's negative impact on ASI and inflation, both significant at the 5% level. Most other cross-effects are not significant, suggesting limited short-term spillover across variables in this dataset. The high explanatory power for ASI and GDP equations indicates robust model specification for these variables, while the moderate R-squared for inflation and interest rates may reflect the influence of omitted variables or greater inherent volatility.

Table 6: Serial Correlation LM Tests

Lag	LRE* stat	Df	Prob.	Rao F-stat	Df	Prob.
1	46.78088	36	0.1077	1.376030	(36, 81.8)	0.0187
2	39.18282	36	0.3290	1.105986	(36, 81.8)	0.3470

Source: Investigator's Computation using E-views 12, 2025

The serial correlation tests reveal that at lag 1, there is significant evidence of serial correlation in the model's residuals, indicating a need for possible adjustments or additional lags to improve the model's accuracy. However, at lag 2, the results show no significant serial correlation, suggesting the model is robust over longer lags. Addressing the serial correlation found at lag 1 is important to enhance the reliability and validity of the model's predictions and inferences.

4.3 Policy Implications of Findings

The evidence from this study clearly shows that macroeconomic indicators do have both significant and insignificant impacts on stock market performance in Nigeria, with the nature and strength of this impact varying by indicator. Over the period from 1988 to 2024, some indicators such as money supply and balance of payment demonstrated a significant positive influence on the all-share index, while others like

inflation rate and interest rate showed only insignificant effects.

5. Conclusion and Recommendations

The study's findings provide critical insights into the dynamic interplay of macroeconomic indicators and stock market performance in Nigeria across the review period. Each indicator's role is unique, offering lessons for policymakers and stakeholders aiming to optimise economic growth and capital market stability. Firstly, the analysis revealed a significant negative impact of gross domestic product (GDP) on the all-share index in Nigeria. This suggests that fluctuations in GDP may erode investor confidence, leading to diminished stock market performance. Such a disconnect between macroeconomic growth and capital market performance highlights structural inefficiencies that policymakers must address. Strategic efforts should aim to realign economic priorities, ensuring both GDP growth and investor confidence coexist harmoniously.

Secondly, the findings showed that the inflation rate (INF) has an insignificant negative impact on stock market performance. This indicates that inflation fluctuations do not significantly deter investor confidence or hinder market performance. Nevertheless, addressing structural economic challenges and managing inflation effectively remain essential in fostering a stable and transparent market environment.

thirdly, interest rate (INT) exhibited an insignificant and positive impact on the all-share index. While this suggests that interest rate changes have limited influence on stock market dynamics, it highlights the need for policymakers to evaluate broader financial system structures. Fine-tuning interest rate policies to align better with investment incentives could improve capital market efficiency and participation. In summary, the findings underline that macroeconomic indicators both shape and respond to conditions in the stock market, and that targeted, nuanced policies are needed to address the challenges posed by each. A holistic approach, combining structural reforms, efficient monetary policy, and enhanced trade practices, is essential for fostering a resilient and thriving economy alongside a robust capital market.

Based on the findings of this study, several recommendations can be made for each macroeconomic indicators examined:

To address the significant negative impact of GDP fluctuations on stock market performance, Nigeria should focus on structural reforms that enhance investor confidence. This involves fostering economic diversification to reduce dependency on oil revenues and ensure stable growth across agriculture, technology, and manufacturing sectors. Policymakers should also prioritise transparent governance and efficient fiscal policies to bridge the gap between macroeconomic growth and capital market stability.

Although inflation fluctuations showed a negligible impact on stock market performance, managing inflation remains vital to maintain market stability. Policymakers should focus on stabilising food prices and energy costs, which are the primary drivers of inflation in Nigeria. Additionally, fostering a robust agricultural system and investing in infrastructure can help mitigate inflationary pressures while ensuring a conducive business environment.

The insignificant positive impact of interest rate highlights the limited influence of monetary policy adjustments on stock market dynamics. However, Nigeria can improve this by aligning interest rates with investment incentives. For example, creating favourable loan terms for sectors with high growth potential can enhance market participation and capital formation.

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